

TCM-600 / 600B

US Model
Canadian Model
AEP Model
E Model



TCM-600 : Silver
 (US, Canadian, AEP, E Model)

TCM-600B : Black
 (US, AEP Model)

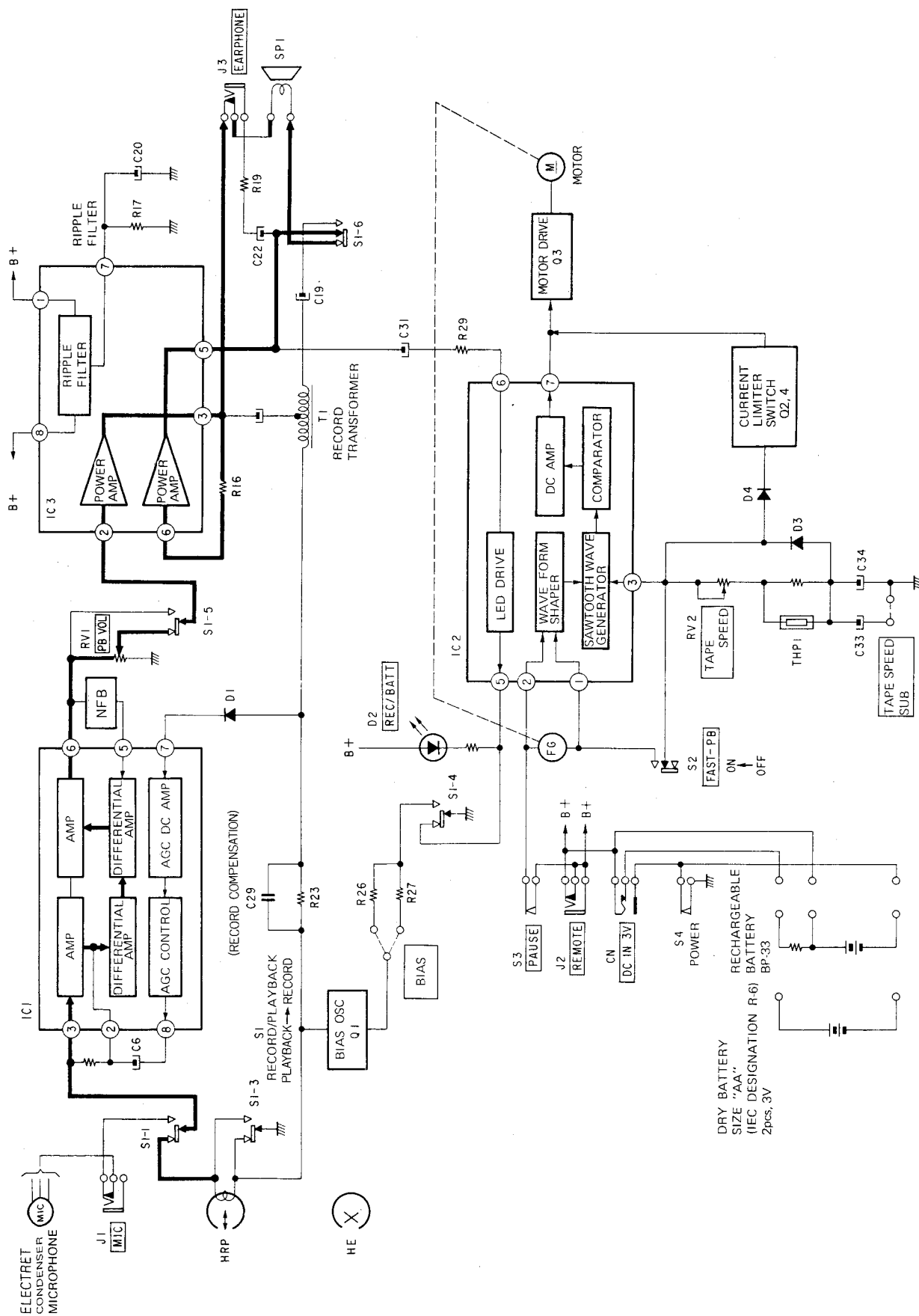
CASSETTE RECORDER

SPECIFICATIONS

Power Requirements:	3 V dc, two batteries size AA (IEC designation R6), or Optional Sony Rechargeable Battery Pack BP-33		Battery Life:	Approx. 4.5 hours of continuous recording with the Built-in Microphone using Eveready Heavy Duty Batteries No. 1215	{ (US, Canadian model)
	120 V ac, 60 Hz with supplied Sony AC Power Adaptor AC-31	{ (US, Canadian model)		Approx. 8 hours of continuous recording with the Built-in Microphone using Eveready Alkaline Batteries No. E91	
Power Consumption:	220 V ac, 50 Hz with Optional Sony AC Power Adaptor AC-35	{ (AEP model)	Input:	Approx. 2.5 hours of continuous recording with the Built-in Microphone using Sony Super Batteries SUM-3S	{ (AEP, E model)
	110, 120, 220, or 240 V ac, 50/60 Hz with Optional Sony AC Power Adaptor AC-32	{ (E model)		MIC (minijack) 1	
	12 V car battery with optional Sony Car Battery Cord DCC-127A			Maximum sensitivity: 0.2 mV (−72 dB)	
				Impedance: Low-impedance microphone	
Power Output:	3.7 W (60 Hz) with AC Power Adaptor AC-31	{ (US, Canadian model)	Output:	EARPHONE (minijack) 1	
	7 W with Sony AC Power Adaptor AC-35	{ (AEP model)		Load impedance: 8 Ω earphone or more than 10 kΩ	
	6.6 W ac at 50 Hz, 6.2 W ac at 60 Hz with Sony AC Power Adaptor AC-32	{ (E model)	Other Jack:	Remote control jack	
			Speaker:	4.5 cm (1 3/4 inches) dia.	
Recording System:	2-track 1-channel monaural		Dimensions:	Approx. 29 (w) x 133.5 (h) x 78.5 (d) mm	
				1 3/16 (w) x 5 5/16 (h) x 3 1/8 (d) inches	
Tape Speed:	4.8 cm/sec (1 7/8 ips) + about 50 % with the FAST-PB switch on		Weight:	Approx. 400 g, 14 1/8 oz including batteries	
				0 dB = 0.775 V	
Fast Winding Time:	Approx. 2 min. with Sony Cassette C-60				
Frequency Response:	90 – 10,000 Hz				

SONY
SERVICE MANUAL

SECTION 1 BLOCK DIAGRAM

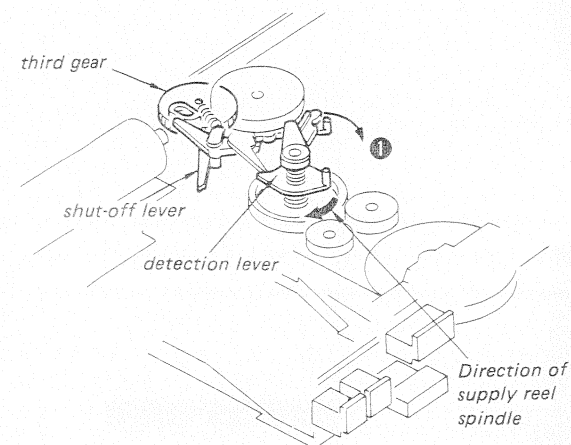


SECTION 2 OPERATION DESCRIPTION

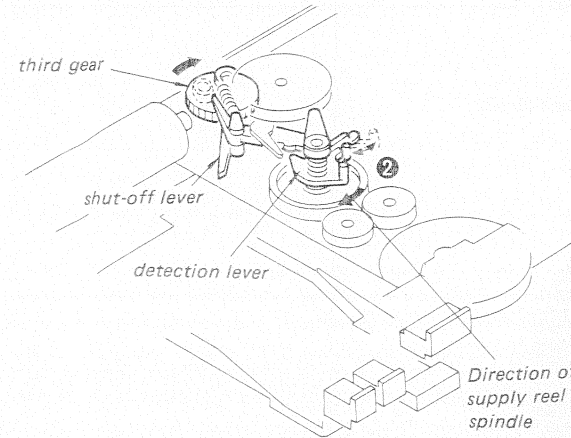
AUTOMATIC SHUT-OFF MECHANISM

• During FWD (or RECORD) operation

While the supply reel is rotating, the detection lever is always pulled in direction ①.

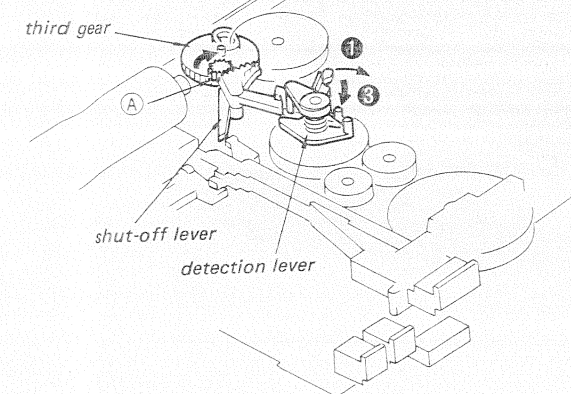


The shut-off lever is repeating the ② motion owing to the third gear rotation.

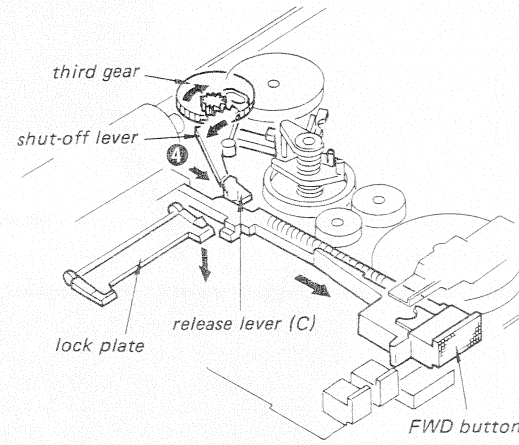


• When the supply reel spindle stops: (end of the tape)

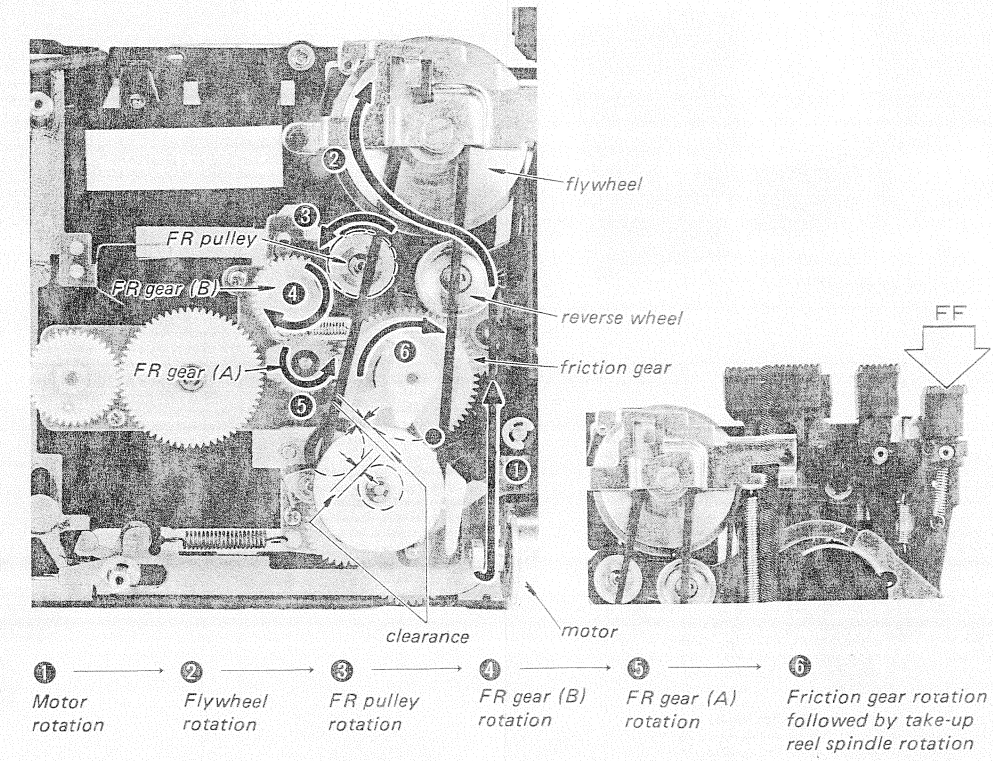
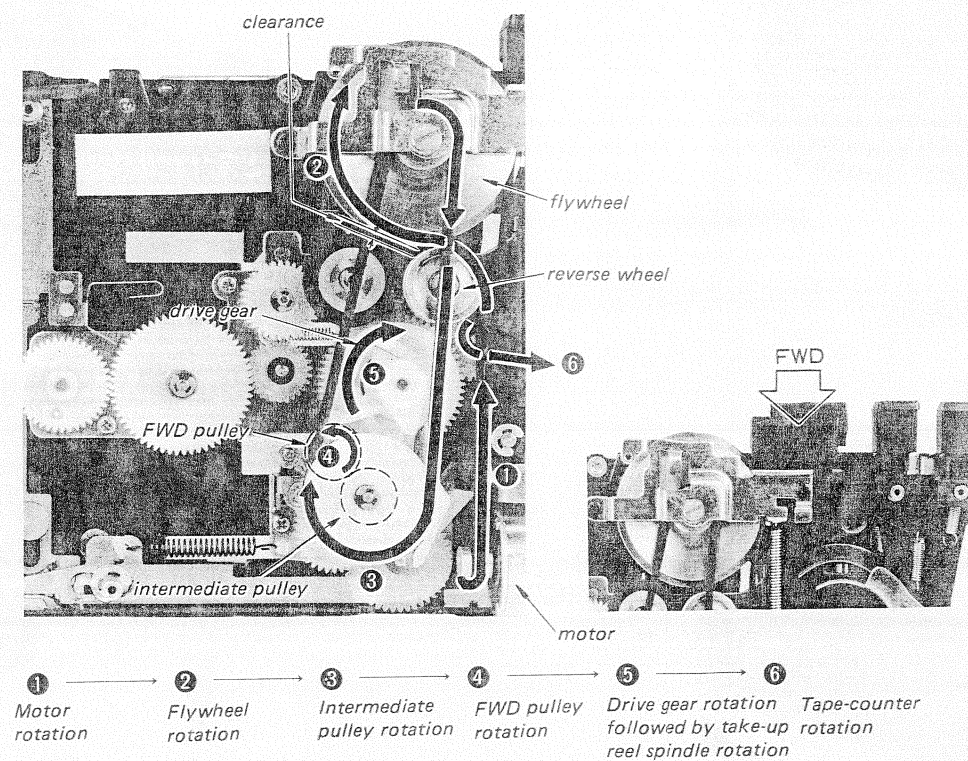
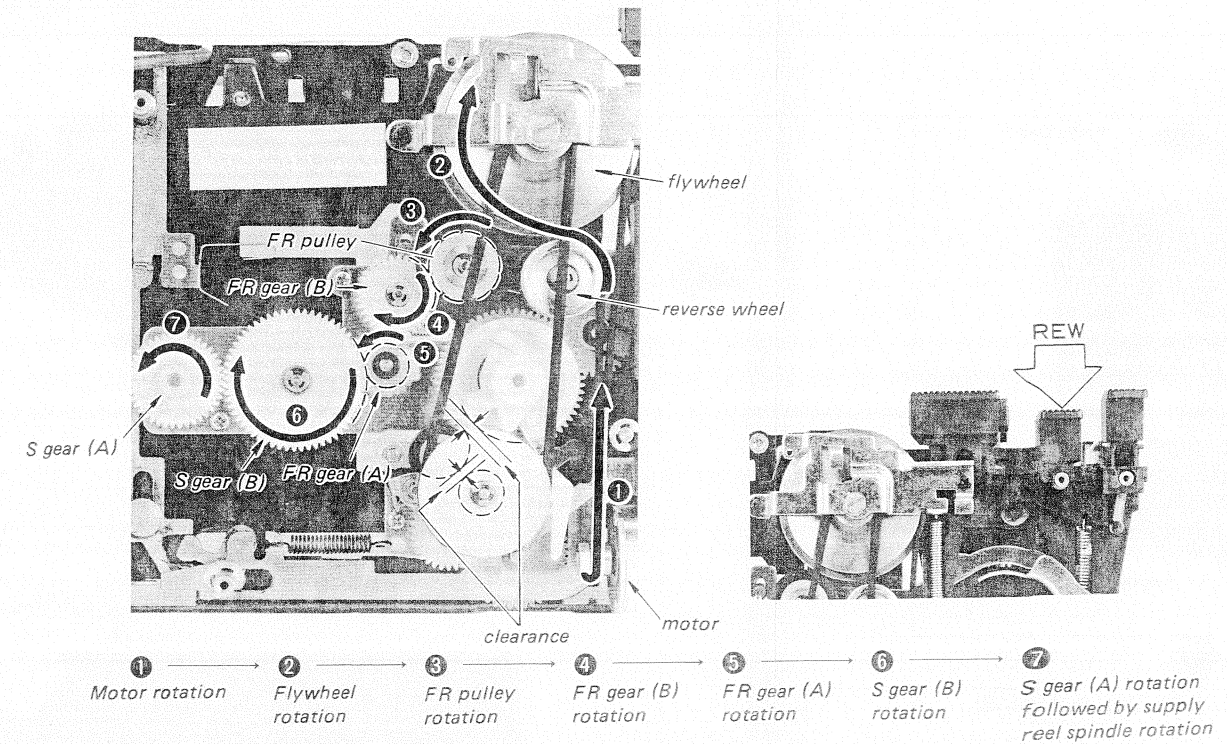
The detection lever is not pulled in direction ① but moves in direction ③ owing to the third gear rotation. The teeth of the shut-off lever mesh with the teeth of the third gear.



As the third gear turns further, the shut-off lever moves in direction ④, pushing the release lever (c) and releasing the FWD button. (RECORD button and FWD button are released in RECORD mode.)



DIRECTION OF ROTATION



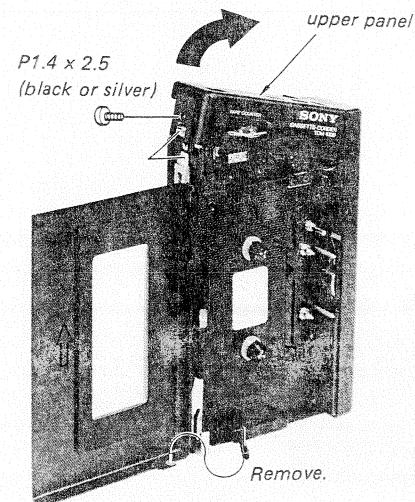
SECTION 3 DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

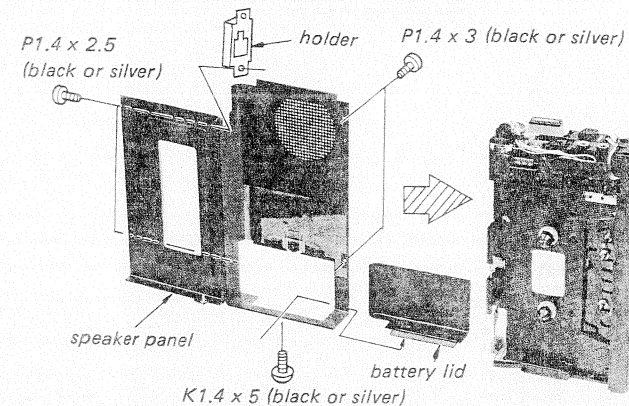
1. REMOVAL

TCM-600 (Panel: Silver)
TCM-600B (Panel: Black)

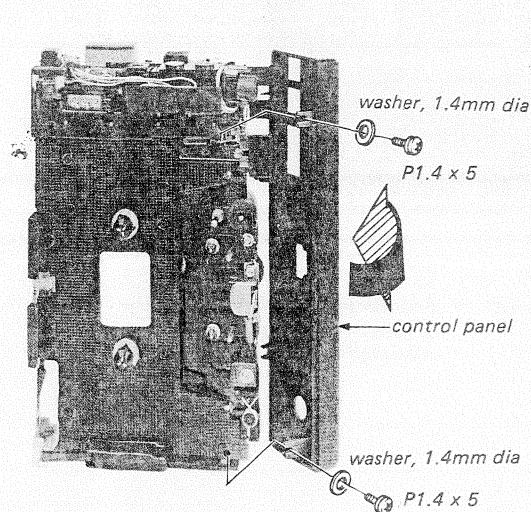
UPPER PANEL REMOVAL



SPEAKER PANEL/BATTERY LID REMOVAL

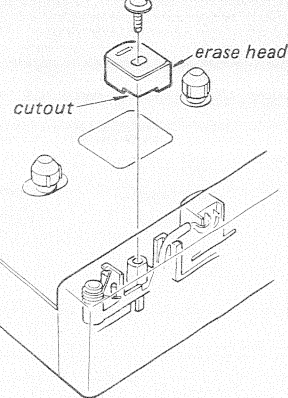


CONTROL PANEL REMOVAL

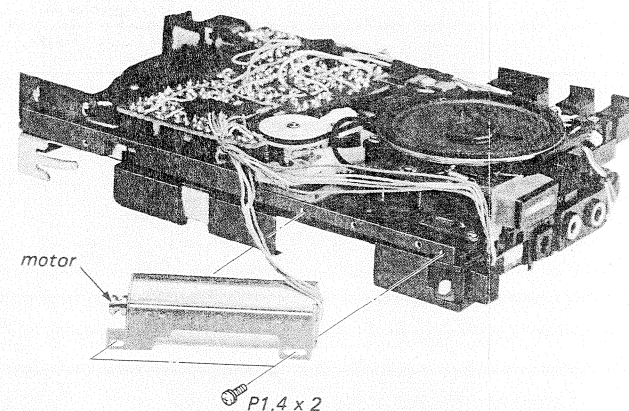


ERASE HEAD

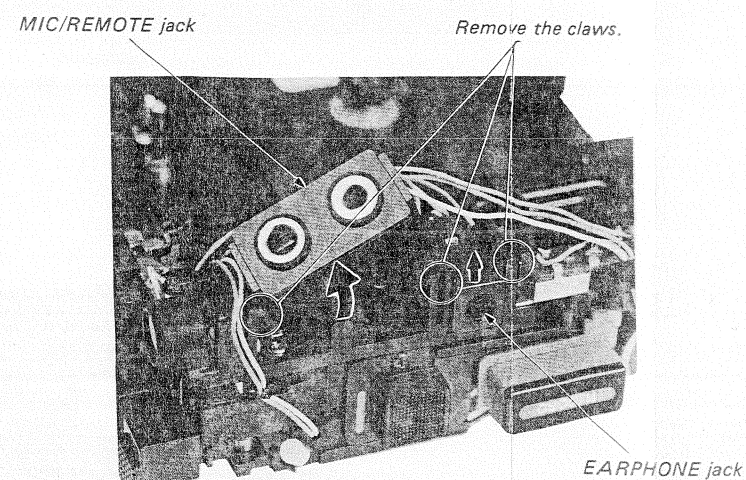
When installing the erase head,
be sure to position the cutout
as shown.



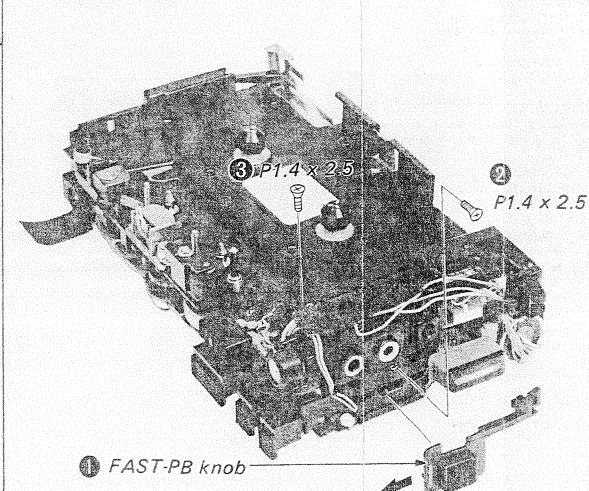
MOTOR REMOVAL



JACK REMOVAL

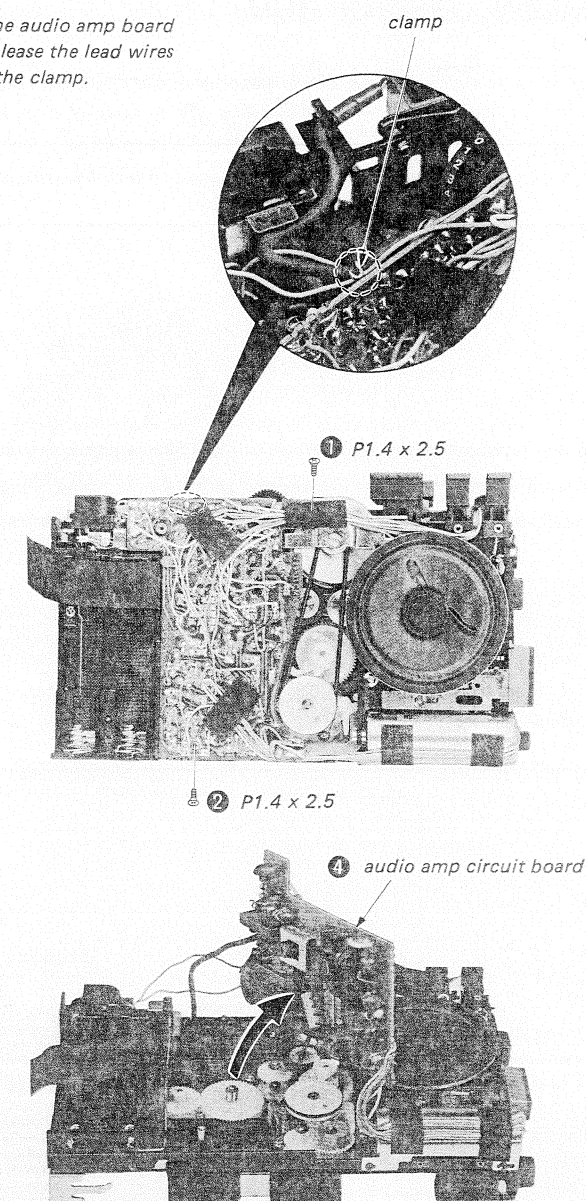


CONTROL PANEL REMOVAL

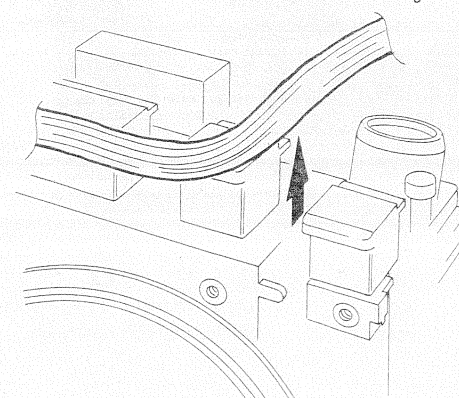


CIRCUIT BOARD REMOVAL

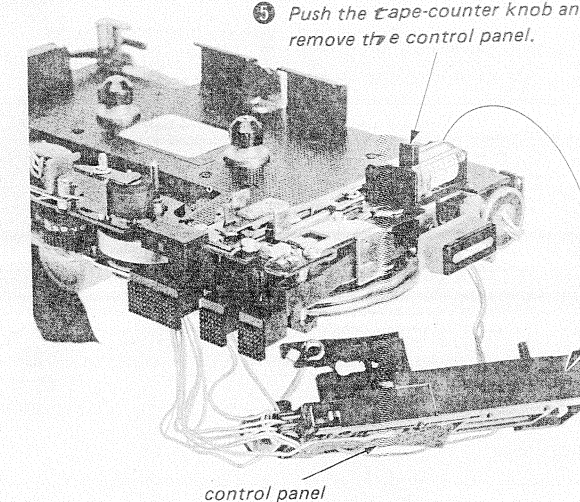
Lift the audio amp board
and release the lead wires
from the clamp.



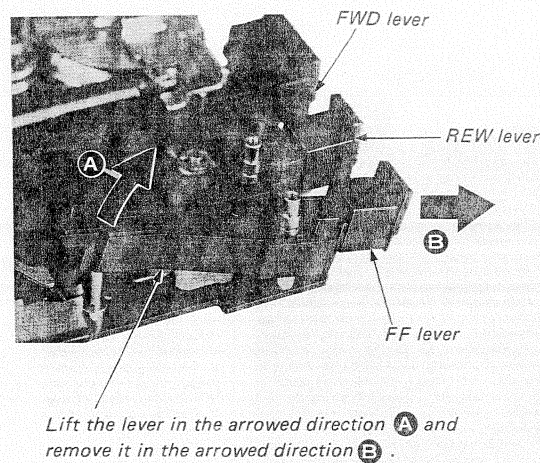
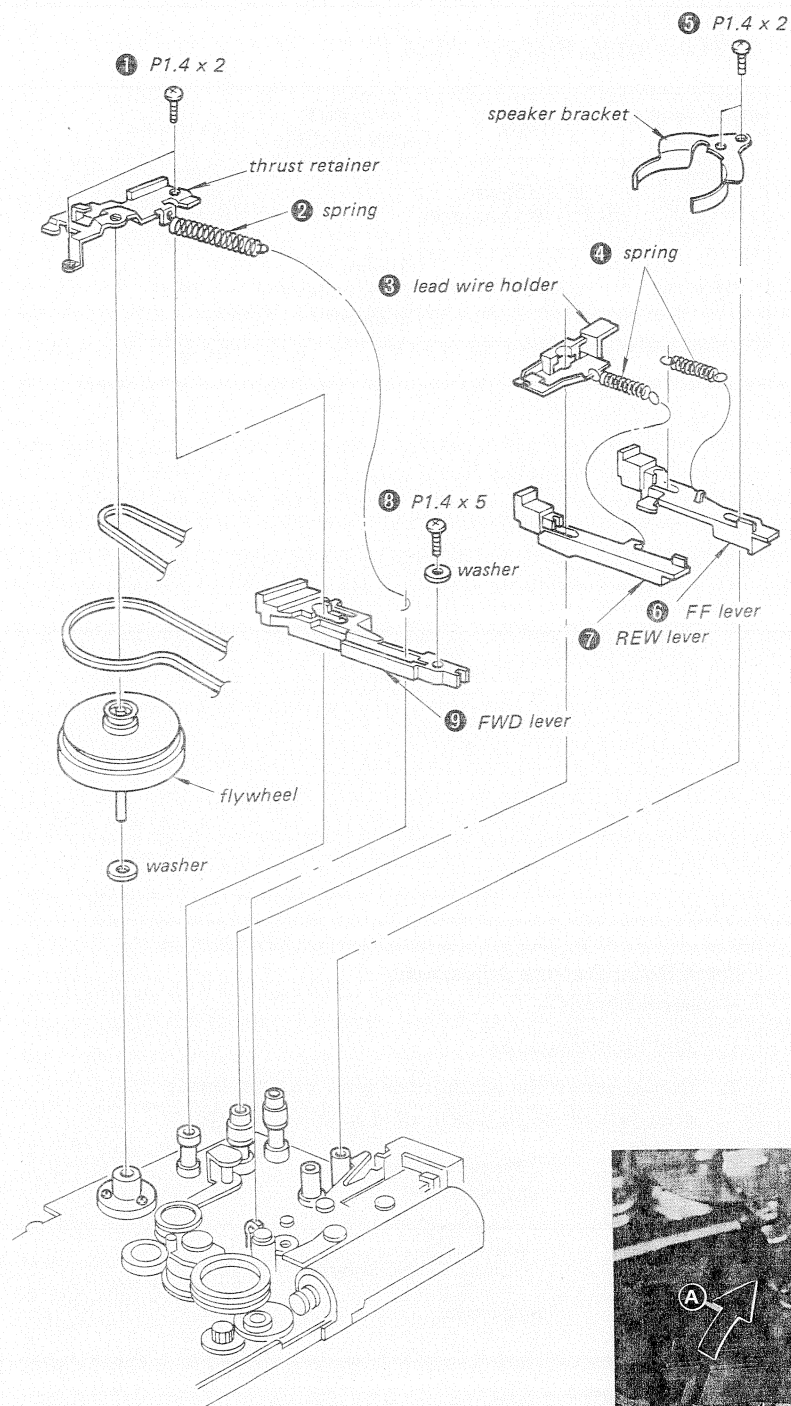
Remove the lead wires
from the lead-wire guide.



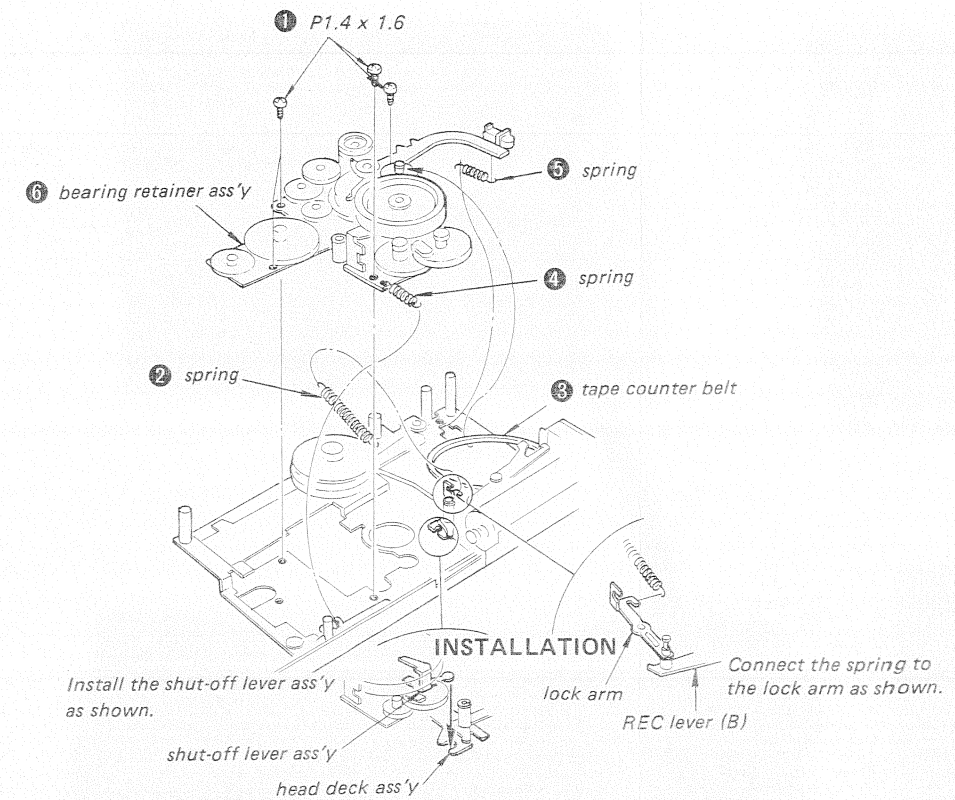
Push the tape-counter knob and
remove the control panel.



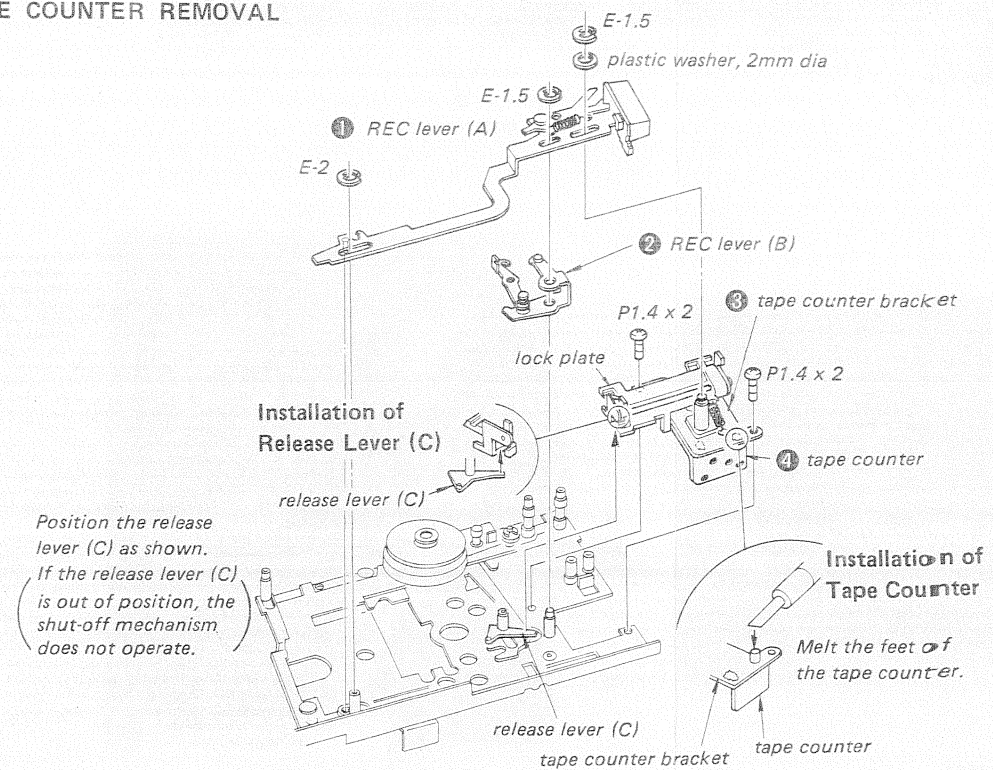
FWD, FF, REW LEVER REMOVAL



BEARING RETAINER ASS'Y REMOVAL

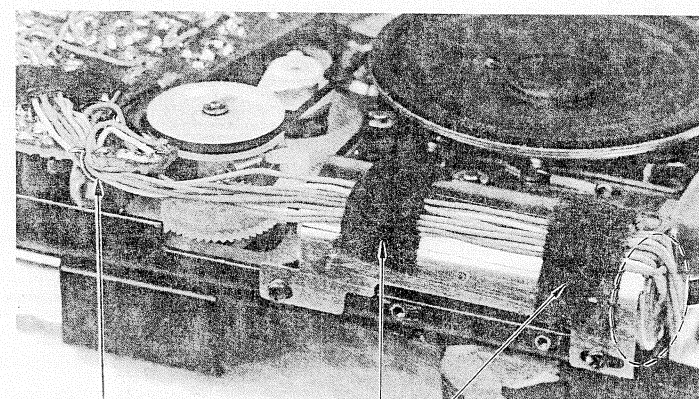
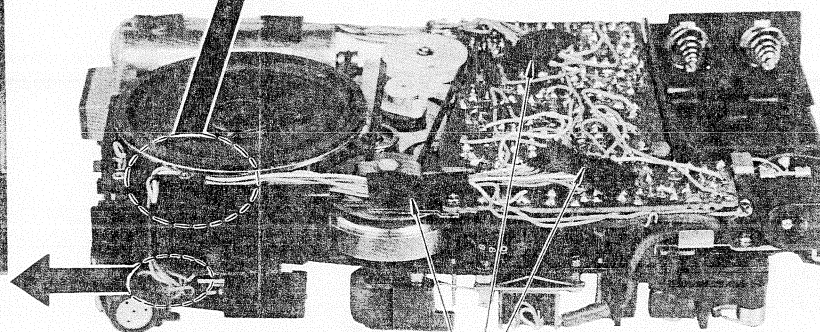
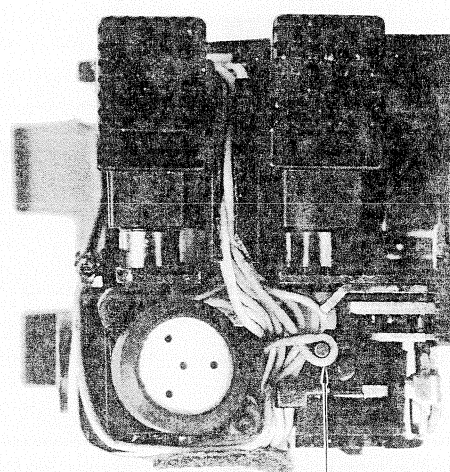
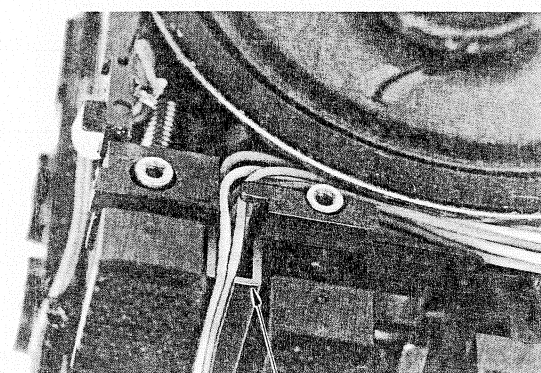
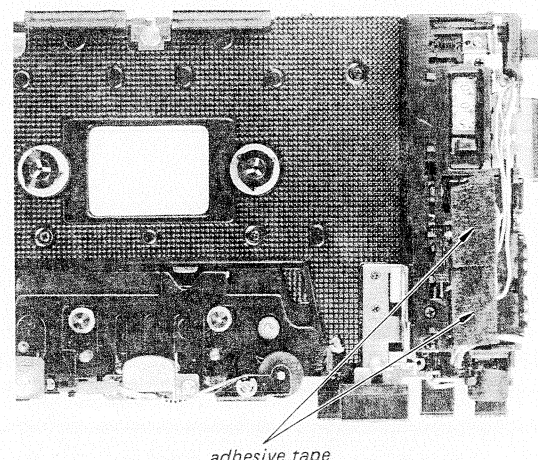


REC LEVER (A, B) AND TAPE COUNTER REMOVAL

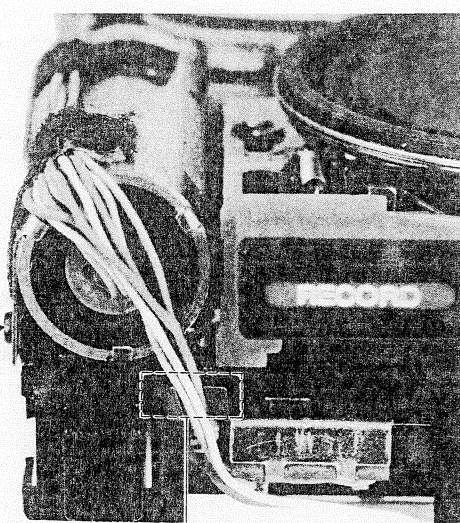


SECTION 4 ADJUSTMENTS

2. WIRING ARRANGEMENT



adhesive tape



4-1. MECHANICAL ADJUSTMENTS

PRECAUTION

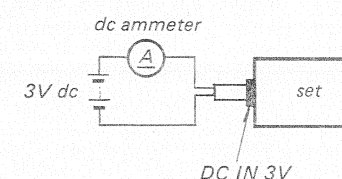
1. Clean the following parts with a denatured-alcohol-moistened swab:
record/playback head pinch roller
erase head rubber belts
capstan
2. Demagnetize the record/playback head with a head demagnetizer. (Do not bring the head demagnetizer close to the erase head.)
3. Do not use a magnetized screwdriver for the adjustments.
4. After the adjustments, apply a suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

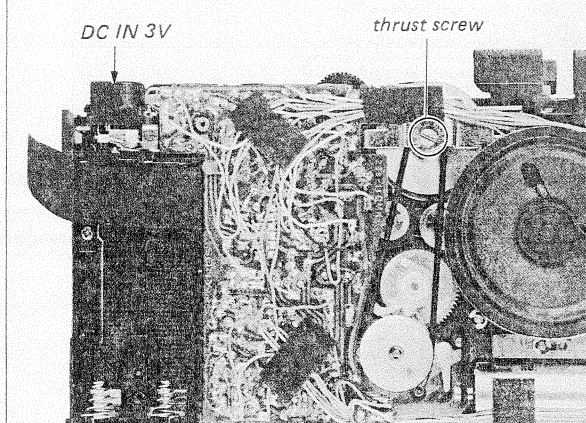
Power Supply Voltage: 3V dc

SONY torque meter	FWD	FF, CUE, REW/REVIEW	Back tension
CQ-101A 102A 103A	25 – 45g-cm (0.35 – 0.62 oz-inch)	—	5g-cm (0.07 oz-inch) or less
CQ-201A	—	55g-cm (0.76 oz-inch) or more	—

Flywheel Thrust Play Adjustment — playback mode —



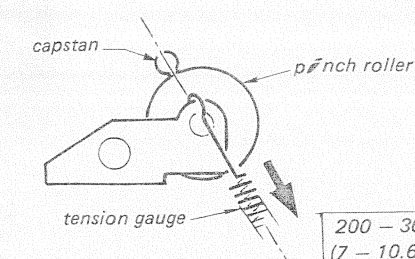
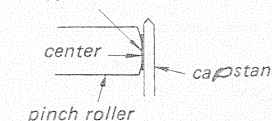
1. Turn the thrust screw counterclockwise until the screw tip is detached from the flywheel shaft.
2. Gradually turn the thrust screw clockwise to the position where the current suddenly increases.
3. Then, turn the thrust screw counterclockwise about 1/4 turn from the position obtained in step 2.
4. Secure the thrust screw with locking compound.



Pinch Roller Pressure Adjustment — playback mode —

1. Pull the spring scale.
2. Slowly return the pinch roller and read the spring scale just when the pinch roller starts to rotate.

The capstan first contacts here.



4-2. ELECTRICAL ADJUSTMENTS

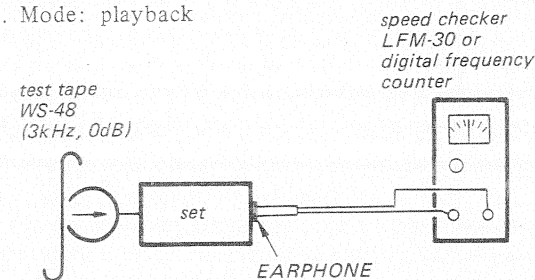
Tape Speed Adjustment

Setting:

Power Supply Voltage: 3V dc
Playback Speed: normal speed

Procedure:

1. Mode: playback



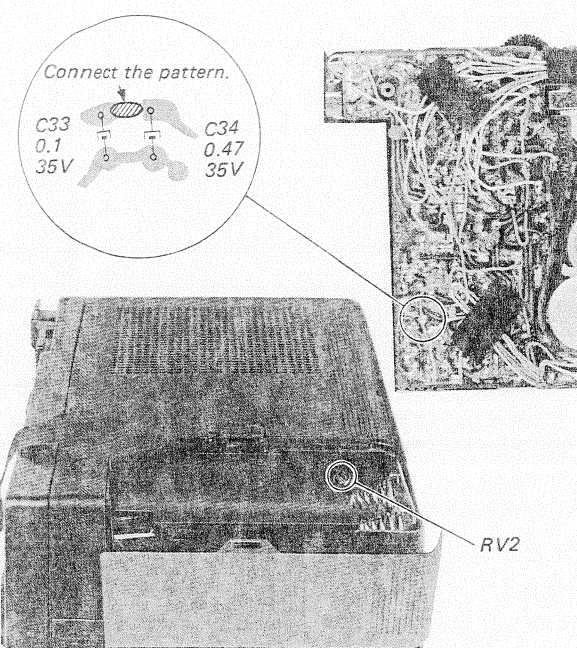
Adjust RV2 to obtain the specified values below.

Specifications:

Speed checker	Digital frequency counter
$\pm 0.5\%$	2,985Hz – 3,015Hz

Frequency difference between beginning and end of tape should be within 2% (60Hz).

2. If necessary, connect the pattern.



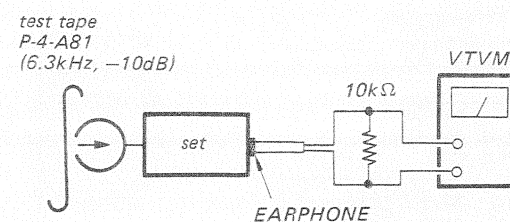
Record/playback Head Azimuth Adjustment

Setting:

Power Supply Voltage: 3V dc

Procedure:

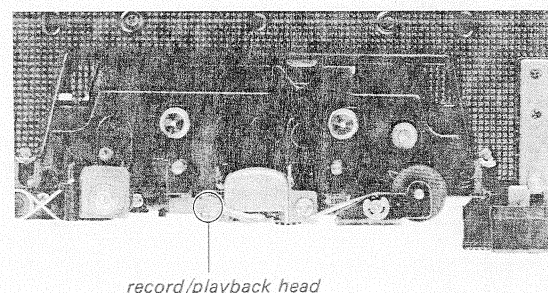
1. Mode: playback



2. Turn the adjustment screw for the highest VTVM reading.

Note: Several peaks may appear, take the highest.

Adjustment Location:



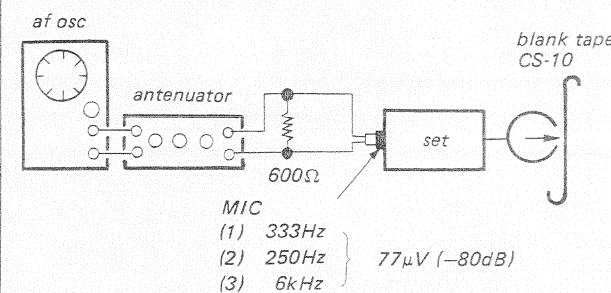
Record Bias Adjustment

Setting:

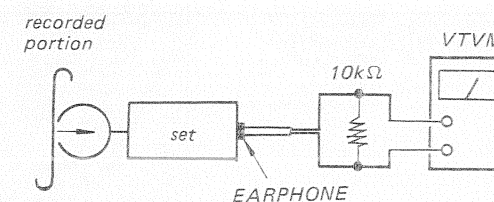
Power Supply Voltage: 3V dc

Procedure:

1. Mode: record



2. Mode: playback

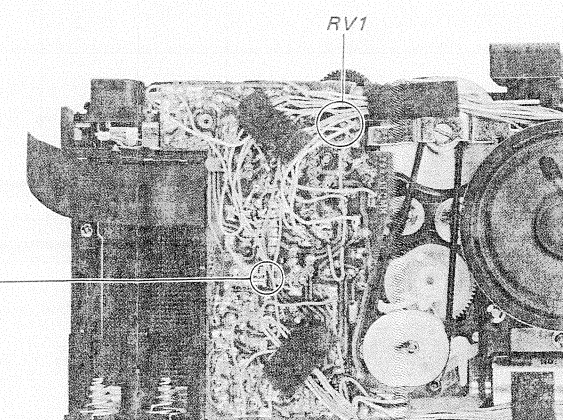
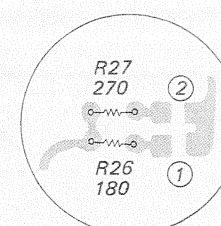


Recorded signal	VTVM reading
333Hz	Adjust PB VOL control (RV1) for 0.25V (-10dB)
250Hz	Should be 0.17V to 0.35V
6kHz	(-13dB to -7dB)

If necessary, change the pattern connection (① and ②).

Pattern Connection	High Frequency Level
① and ②	down
①	up
②	up

Adjustment Location:

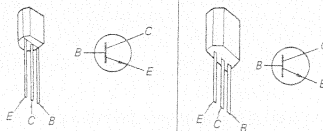


SECTION 5
DIAGRAMS

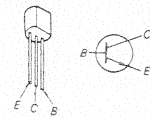
5-1. MOUNTING DIAGRAM
— Conductor Side —

- **Replacement Semiconductors**
For replacement, use semiconductors except in ().

Q1, 2, 4: 2SC1364 (2SC633A)



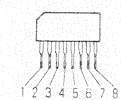
Q3: 2SC1474



IC1: CX182

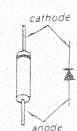
IC2: CX183

IC3: CX184

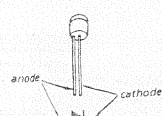


D1, 4: 1S1555 (1T40)

D3 : 1T22AM (1T22)



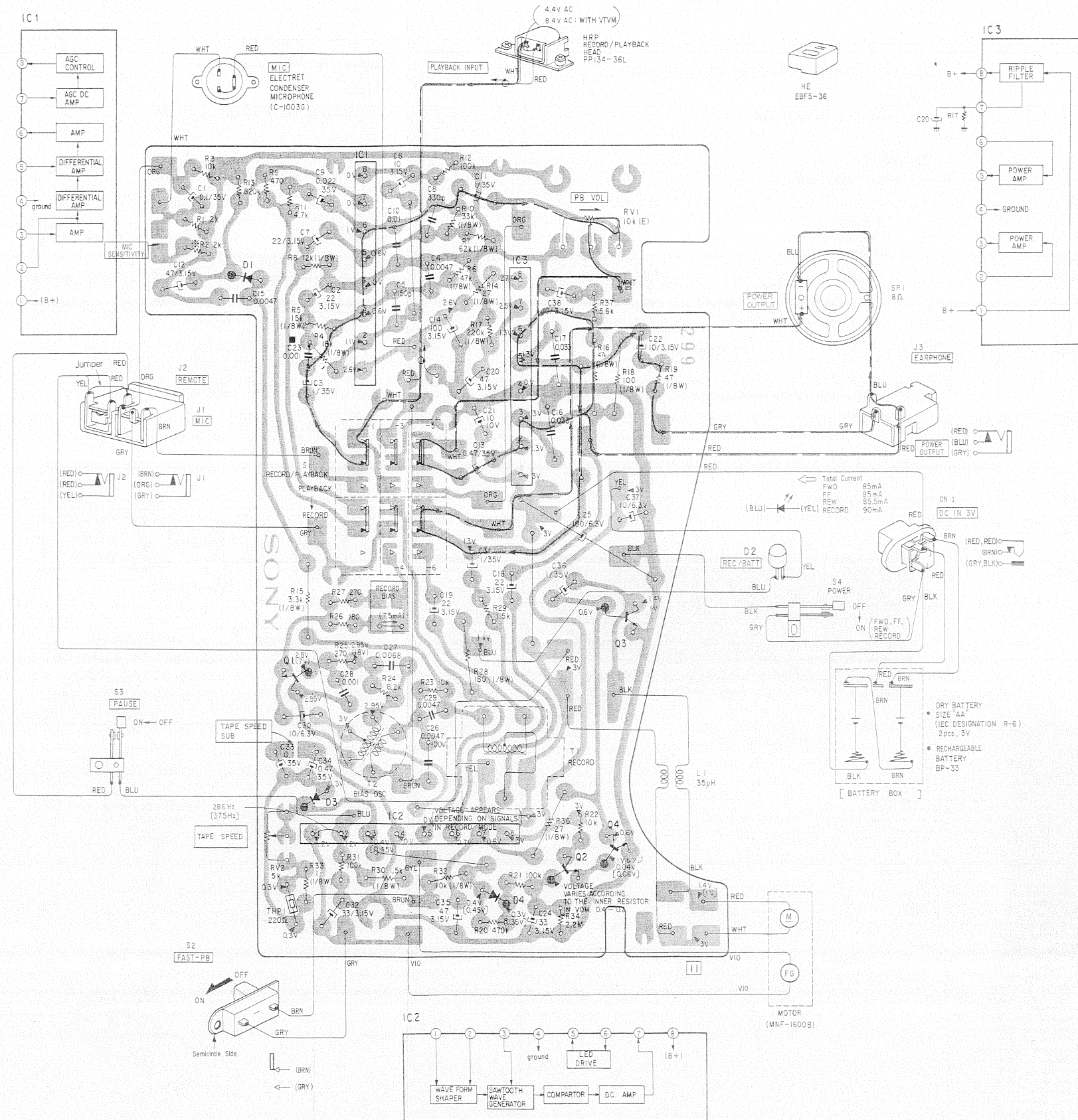
D2: TLR109



Note:

- : part mounted on the conductor side.
- : B + pattern
- : signal path (playback mode)
- Total current is measured with no cassette installed.
- In using an electret condenser microphone with a red mark on the side of the case, connect R2 shown by * in parallel with R1.

D	K, Q
1	IC1
2	IC3
3	IC2
4	2



SECTION 5 DIAGRAMS

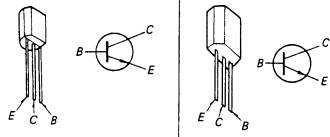
5-1. MOUNTING DIAGRAM

— Conductor Side —

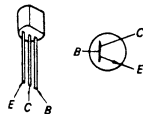
- **Replacement Semiconductors**

For replacement, use semiconductors except in ().

Q1, 2, 4: 2SC1364 (2SC633A)



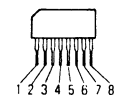
Q3: 2SC1474



IC1: CX182

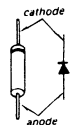
IC2: CX183

IC3: CX184

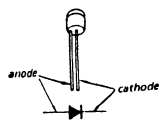


D1, 4: 1S1555 (1T40)

D3 : 1T22AM (1T22)

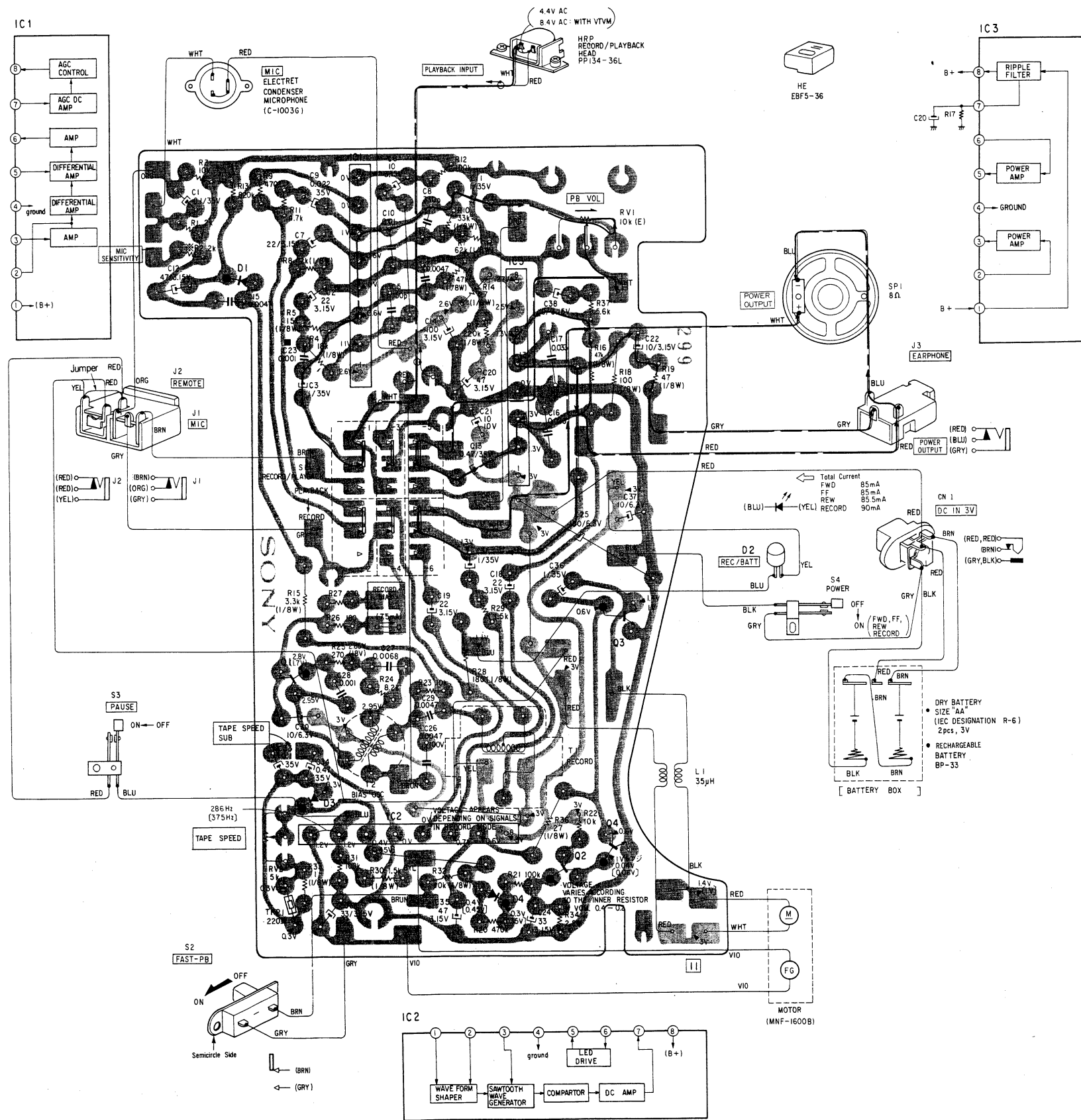
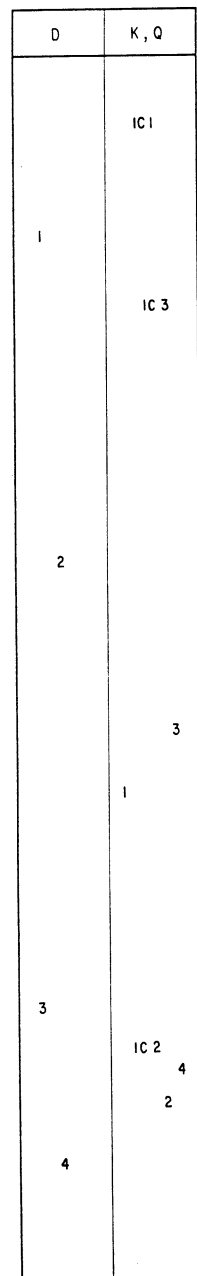


D2: TLR109



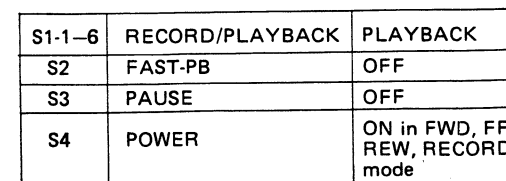
Note:

- ■ : part mounted on the conductor side.
-  : B + pattern
-  : signal path (playback mode)
- Total current is measured with no cassette installed.
- In using an electret condenser microphone with a red mark on the side of the case, connect R2 shown by ※ in parallel with R1.



TCM-600/600B

5-2. SCHEMATIC DIAGRAM

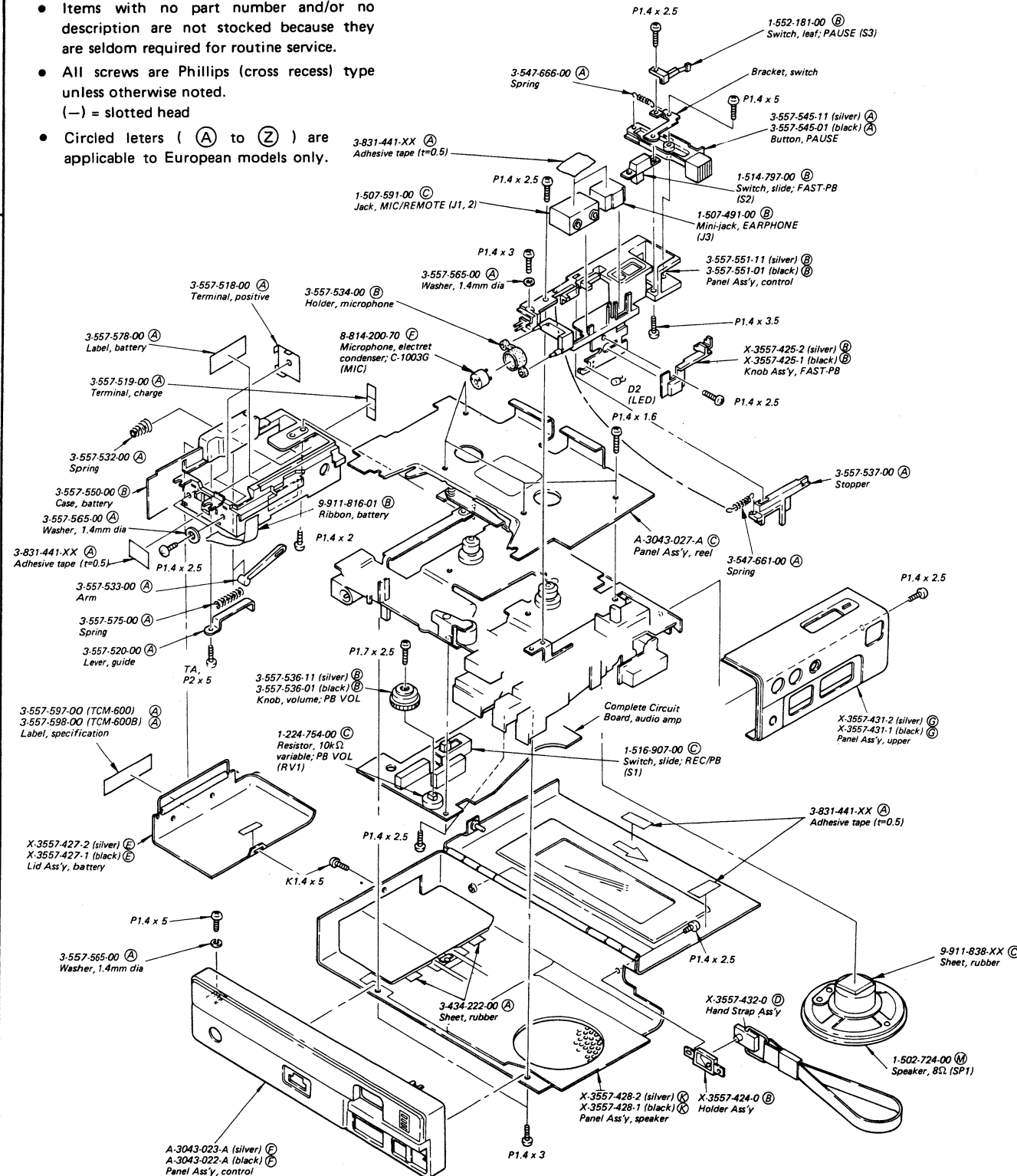


SECTION 6 EXPLODED VIEWS

6-1.

Note:

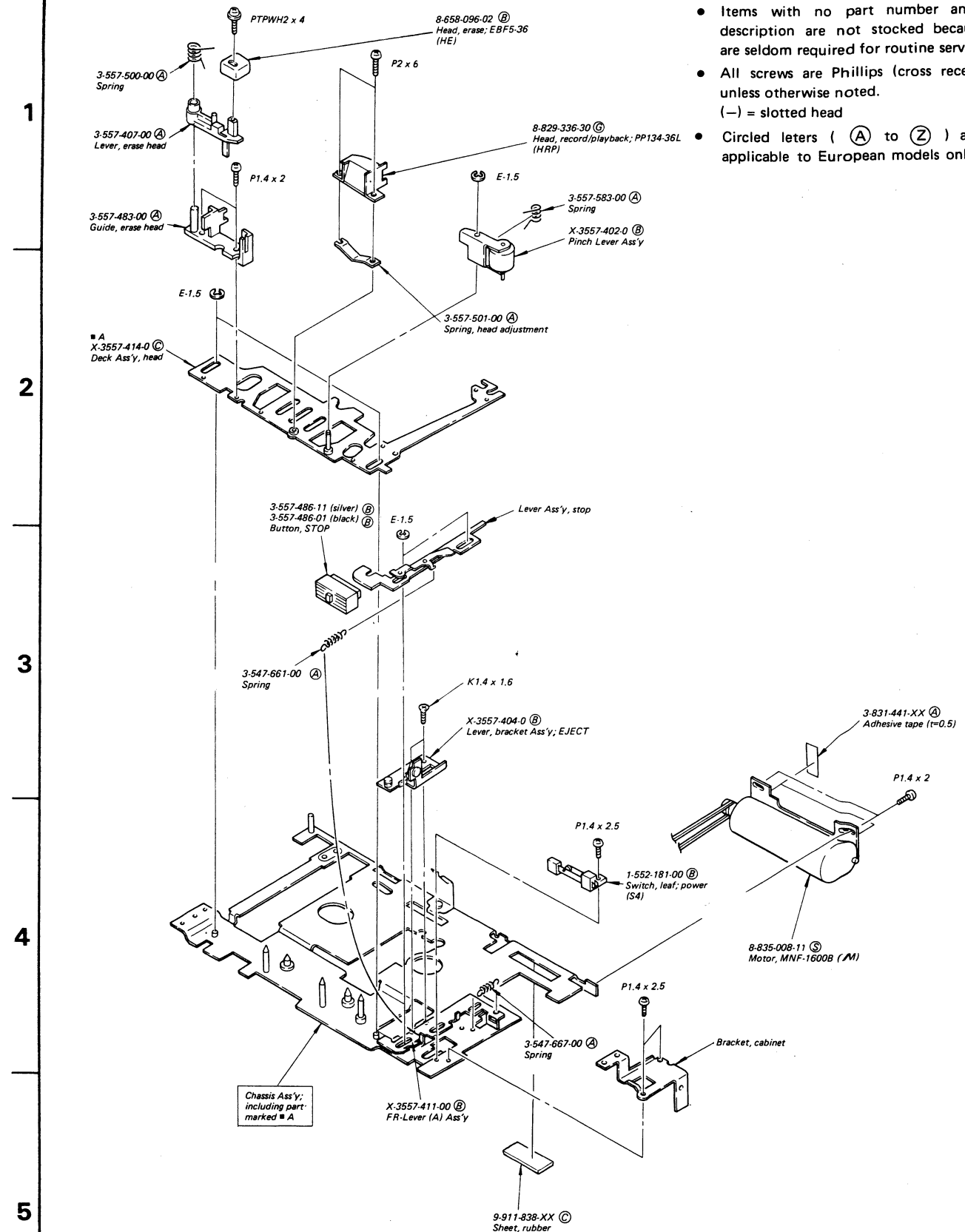
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
(—) = slotted head
- Circled letters (A to Z) are applicable to European models only.



6-2.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
(—) = slotted head
- Circled letters (A to Z) are applicable to European models only.



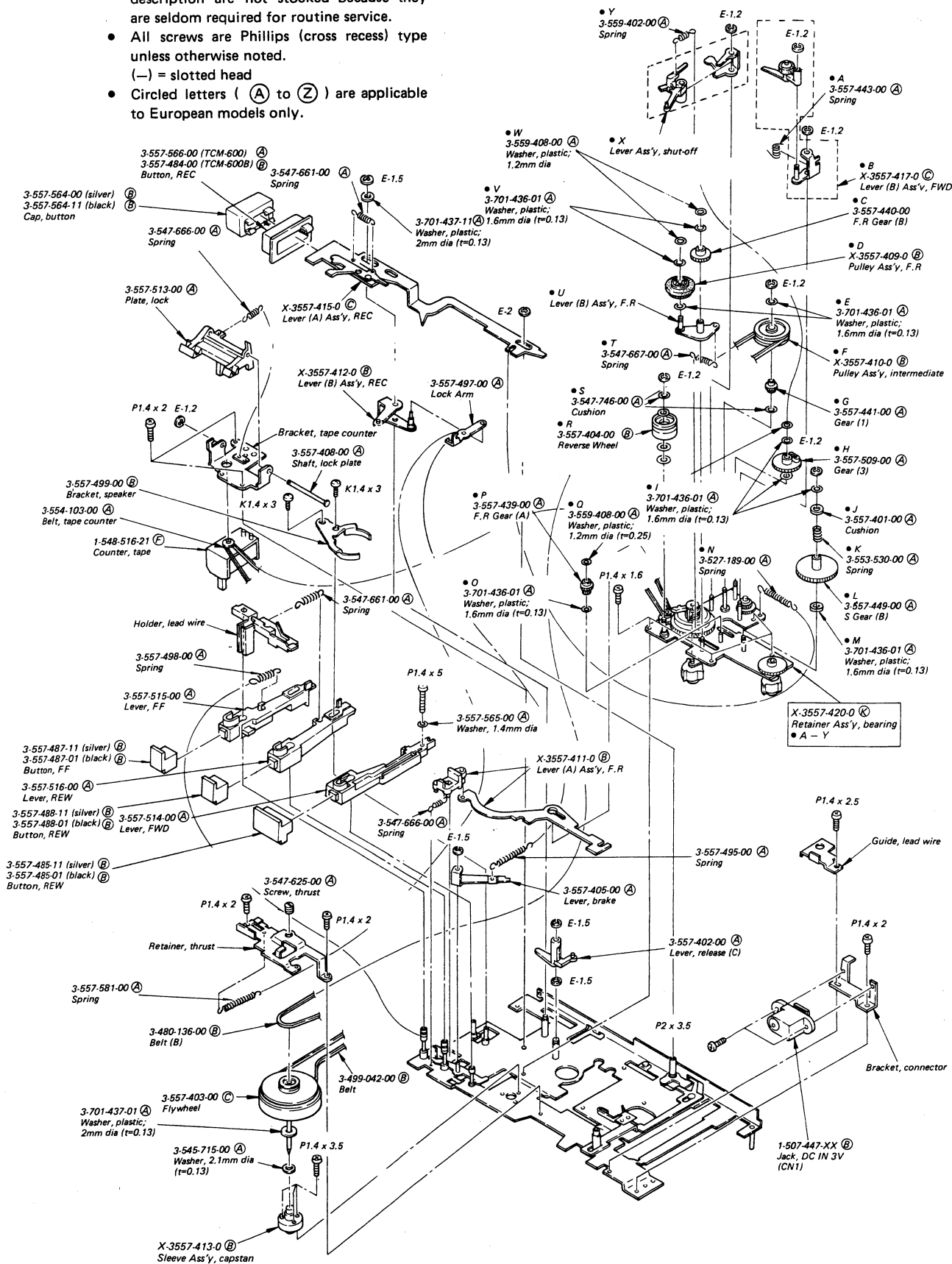
- Circled letters (**A** to **Z**) are applicable to European models only.

SECTION 7

ELECTRICAL PARTS LIST

6-3. Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
(—) = slotted head
- Circled letters (**A**) to (**Z**) are applicable to European models only.



<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
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SEMICONDUCTORS

Transistors

Q1, 2	8-726-377-00	(B)	2SC1364
Q3	8-760-333-10	(B)	2SC1474
Q4	8-726-377-00	(B)	2SC1364

ICs

IC1	8-751-820-00	(F)	CX182
IC2	8-751-830-00	(E)	CX183
IC3	8-751-840-00	(F)	CX184

Diodes

D1	8-719-815-55	(A)	1S1555
D2	8-719-810-09	(B)	TLR109
D3	8-719-622-11	(A)	1T22A
D4	8-719-815-55	(A)	1S1555

THP 1-800-535-00 (B) Thermistor, positive

COIL

L1 1-407-847-00 (B) Microinductor, 35 μ H

TRANSFORMERS

T1	1-427-411-00	© Record
T2	1-433-191-00	© OSC

CAPACITORS

All capacitors are in μF and tantalum unless otherwise noted.
50WV or less are not indicated except for electrolytics and
tantalum. pF : $\mu\mu\text{F}$

C1	1-131-341-11	Ⓑ	0.1	35V	boundary layer ceramic
C2	1-131-391-11	Ⓑ	22	3.15V	
C3	1-131-347-11	Ⓑ	1	35V	
C4	1-161-030-11	Ⓐ	0.0047		
C5	1-102-108-11	Ⓐ	150p		
C6	1-131-389-11	Ⓓ	10	3.15V	ceramic boundary layer
C7	1-131-391-11	Ⓑ	22	3.15V	
C8	1-102-112-11	Ⓐ	330p		
C9	1-131-398-11	Ⓑ	0.022	35V	
C10	1-161-032-11	Ⓐ	0.01		

- ⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

<u>Ref. No.</u>	<u>Part No.</u>	<u>Description</u>
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C11	1-131-347-11	Ⓑ 1	35V	
C12	1-131-393-11	Ⓑ 47	3.15V	
C13	1-131-345-11	Ⓑ 0.47	35V	
C14	1-131-395-11	Ⓑ 100	3.15V	
C15	1-161-030-11	Ⓐ 0.0047		boundary layer

C16, 17	1-161-035-11	(A)	0.033	boundary layer
C18, 19	1-131-391-11	(B)	22	3.15V
C20	1-131-393-11	(B)	47	3.15V
C21	1-131-377-11	(B)	10	10V
C22	1-131-389-11	(D)	10	3.15V

C23	1-161-026-11	(A)	0.01		boundary layer
C24	1-131-392-11	(B)	33	3.15V	
C25	1-131-177-11	(C)	100	6.3V	
C26	1-108-373-12	(A)	0.0047	100V	mylar
C27	1-161-031-11	(A)	0.0068		boundary layer

C28	1-161-026-11	(A)	0.001	boundary layer
C29	1-161-030-11	(A)	0.0047	boundary layer
C30	1-131-383-11	(B)	10	6.3V
C31	1-131-347-11	(B)	1	35V
C32	1-131-392-11	(B)	33	3.15V

C33	1-131-341-11	Ⓑ 0.1	35V
C34	1-131-345-11	Ⓑ 0.47	35V
C35	1-131-393-11	Ⓑ 47	3.15V
C36	1-131-347-11	Ⓑ 1	35V
C37	1-131-383-11	Ⓑ 10	6.3V

C38	1-131-389-11	ⓓ 10	3.15V
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RESISTORS

All resistors are in ohms. Resistors in the list are carbon type unless otherwise noted. Check schematic diagrams for their values.

R1, 2	1-209-767-11	Ⓐ 2k	1/16W
R3	1-209-781-11	Ⓐ 10k	1/16W
R4	1-246-798-11	Ⓐ 18k	1/8W
R5	1-246-797-11	Ⓐ 15k	1/8W
R6	1-246-803-11	Ⓐ 47k	1/8W
R7	1-246-865-11	Ⓐ 62k	1/8W
R8	1-246-796-11	Ⓐ 12k	1/8W
R9	1-209-764-11	Ⓐ 470	1/16W
R10	1-246-801-11	Ⓐ 33k	1/8W
R11	1-209-773-11	Ⓐ 4.7k	1/16W
R12	1-210-115-11	Ⓐ 100k	1/16W
R13	1-211-689-11	Ⓐ 820k	1/16W
R14	1-246-764-11	Ⓐ 27	1/8W
R15	1-246-789-11	Ⓐ 3.3k	1/8W

• Circled letters (A to Z) are applicable to European models only.

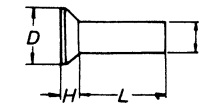
Ref. No.	Part No.	Description
R16	1-246-803-11	(A) 47k 1/8W
R17	1-246-811-11	(A) 220k 1/8W
R18	1-246-771-11	(A) 100 1/8W
R19	1-246-767-11	(A) 47 1/8W
R20	1-210-844-11	(A) 470k 1/16W
R21	1-210-115-11	(A) 100k 1/16W
R22, 23	1-209-781-11	(A) 10k 1/16W
R24	1-209-779-11	(A) 8.2k 1/16W
R25	1-210-363-11	(A) 270 1/16W
R26	1-210-360-11	(A) 180 1/16W
R27	1-210-363-11	(A) 270 1/16W
R28	1-246-774-11	(A) 180 1/8W
R29	1-209-766-11	(A) 1.5k 1/16W
R30	1-246-785-11	(A) 1.5k 1/8W
R31	1-210-115-11	(A) 100k 1/16W
R32	1-246-796-11	(A) 10k 1/8W
R33	1-246-783-11	(A) 1.0k 1/8W
R34	1-211-697-11	(A) 2.2M 1/16W
R36	1-246-764-11	(A) 27 1/8W
R37	1-209-775-11	(A) 5.6k 1/16W
RV1	1-224-754-00	(C) 10k, variable; PB VOL
RV2	1-226-073-00	(C) 5k, adjustable
SWITCHES		
S1	1-516-907-00	(C) Slide, REC/PB
S2	1-514-797-00	(B) Slide, FAST-PB
S3	1-552-181-00	(B) Leaf, PAUSE
S4	1-552-181-00	(B) Leaf, POWER
JACKS		
J1, 2	1-507-591-00	(C) MIC, REMOTE
J3	1-507-491-00	(B) EARPHONE
CN1	1-507-447-XX	(B) DC IN 3V
MISCELLANEOUS		
HE	8-658-096-02	(B) Head, erase; EBF5-36
HRP	8-829-336-30	(G) Head, record/playback; PP134-36L
M	8-835-008-11	(Z) Motor, MNF-1600B
MIC	8-814-200-70	(F) Microphone, C-1003G
SP1	1-502-724-00	(H) Speaker 8Ω
	1-548-516-21	(F) Counter, tape

ACCESSORIES & PACKING MATERIALS

Part No.	Description
X-3557-432-0	(D) Hand Strap Ass'y
X-3701-105-0	(A) Tip Ass'y, cleaning
1-463-191-00	Adaptor, AC power; AC-31 (TCM-600/600B: US model)
1-463-201-00	Adaptor, AC power; AC-31 (TCM-600: Canadian model)
1-504-059-11	(C) Earphone, ME-20H
1-506-309-00	Plug, shorting; SP-100 (TCM-600B: US model)
1-528-027-11	Battery, size "AA", (IEC designation R6) (TCM-600: E model)
1-534-237-23	(E) Cord, connection; RK-64H (TCM-600: Canadian, AEP, E, US model) (TCM-600B: AEP model)
3-557-568-00	(A) Spacer
3-557-570-00	(B) Cushion (TCM-600B: US, AEP model) (TCM-600: US, AEP, E model)
3-559-425-00	Cushion (TCM-600: Canadian model)
3-557-584-00	(A) Plate, partition (TCM-600B: US, AEP model) (TCM-600: US, AEP, E model)
X-3557-434-0	Carton (TCM-600: Canadian model)
3-557-592-00	(C) Carton (TCM-600: US, AEP, E model)
3-557-595-00	(B) Carton (TCM-600B: US, AEP model)
3-557-599-00	(I) Case, carrying
3-701-613-00	(A) Bag, plastic
3-701-614-00	(A) Bag, plastic
3-701-620-00	Bag, plastic; AC Adaptor (TCM-600/600B: US model) (TCM-600: Canadian model)
3-701-624-00	(A) Bag, plastic
3-770-586-11	(C) Manual, instruction (TCM-600/600B: AEP model)
3-770-586-21	Manual, instruction (TCM-600: US model)
3-770-586-21	Manual, instruction (TCM-600: Canadian model)
3-794-285-31	Manual, instruction (TCM-600: E model)
3-770-586-51	Manual, instruction (TCM-600: E model)
3-770-587-21	Manual, instruction (TCM-600B: US model)
3-793-828-11	(A) Leaflet, cassette-corder
8-893-512-00	(F) Tape, demonstration; CD-807 (TCM-600B: AEP model) (TCM-600: US, Canadian, AEP model)

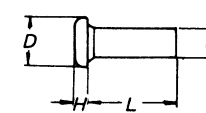
DIMENSIONS OF SCREWS

Flat-countersunk-head screw



Part No.	Description	d (mm)	L (mm)	H (mm)	D (mm)	Color
7-627-451-13	K 1.4 x 2.5	1.4	2.5	0.45	2	silver
7-627-451-23	K 1.4 x 3	1.4	3	0.45	2	silver

Pan-head screw



Part No.	Description	d (mm)	L (mm)	H (mm)	D (mm)	Color
7-627-551-03	P 1.4 x 1.6	1.4	1.6	0.5	2	silver
7-627-551-13	P 1.4 x 2	1.4	2	0.5	2	silver
7-627-551-19						black
7-627-551-33	P 1.4 x 5	1.4	5	0.5	2	silver
7-627-551-39						black
7-627-551-43	P 1.4 x 1.4	1.4	1.4	0.5	2	silver
7-627-551-53	P 1.4 x 3	1.4	3	0.5	2	silver
7-627-551-63	P 1.4 x 3.5	1.4	3.5	0.5	2	silver
7-627-551-69						black
7-627-552-63	P 1.7 x 4.5	1.7	4.5	0.5	2.5	silver
7-627-553-53	P 2 x 4.5	2	4.5	0.6	3	silver
7-627-850-09	P 1.4 x 2	1.4	2	0.8	2.5	black
7-627-850-29	P 1.4 x 3	1.4	3	0.8	2.5	black
7-627-850-43	P 1.4 x 1.6	1.4	1.6	0.8	2.5	silver
7-627-850-53	P 1.4 x 3.5	1.4	3.5	0.8	2.5	silver
7-627-850-63	P 1.4 x 4	1.4	4	0.8	2.5	silver
7-627-851-03	P 2 x 3.5	2	3.5	1	3.5	silver
7-627-852-09	P 1.7 x 2.5	1.7	2.5	0.9	3	black
7-627-852-13	P 1.7 x 4	1.7	4	0.9	3	silver

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